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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,049	10/10/2001	Ishai Nachumovsky	TSL-105	1005

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EXAMINER

WEISS, HOWARD

ART UNIT PAPER NUMBER

2814

DATE MAILED: 06/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,049

Applicant(s)

NACHUMOVSKY, ISHAI

Examiner

Howard Weiss

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 are pending in the application.
- 4a) Of the above claim(s) 11-17 are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-17 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 10 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Attorney's Docket Number: TSL-105

Filing Date: 10/10/02

Continuing Data: none

Claimed Foreign Priority Date: none

Applicant(s): Nachumovsky

Examiner: Howard Weiss

Election/Restrictions

1. The Applicant's election of Group I, Claims 1 to 10, in Paper No. 3 is acknowledged. Claims 11 to 17 are withdrawn from consideration as being for a non-elected invention. The Applicant is requested to cancel the non-elected claims as part of a complete response to this office action. Cancellation of the non-elected claims would not preclude the later filing of a divisional application on the non-elected invention (please see 35 USC 120 and 121).

Specification

2. The disclosure is objected to because of the following informalities:
 - On Page 16 Paragraph 45 Lines 8 and 9, "u²" should be changed to μ^2 ;
 - Numbers in scientific notation should be expressed as powers of ten. For example, on Page 9 Paragraph 28 Line 5, "5e16-2e17" should be changed to $5 \times 10^{16} - 2 \times 10^{17}$.Appropriate correction is required.
3. The claims are objected to because they lack a proper introduction. The present Office practice is to insist that each claim must be the object of a sentence starting with "I (or we) claim", "The invention claimed is" or the equivalent. Please see MPEP § 608.01(m).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
- (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1 to 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Pham et al. (U.S. Patent No. 6,242,306).

Pham et al. show all aspects of the instant invention (e.g. Figures 1 and 2) including:

- a semiconductor region **16** of a first conductivity and first and second oxide regions **19**
- first and second source/drain regions **14** of a second conductivity opposite the first conductivity and a channel region **20** located between said first and second source/drain regions
- a silicon dioxide gate dielectric layer **15**
- first and second polysilicon floating gate electrodes **24** with a gap **27** therebetween and portions of said floating gate electrode located over said oxide regions
- a dielectric layer **17** comprising a first silicon oxide layer **21**, a silicon nitride layer **22** and a second silicon oxide layer **23** with portions of said first oxide layer located on the edges of said floating gates
- a polysilicon control gate **26** with a first portion extending into said gap and separated from the channel region by the dielectric layer and the gate dielectric layer
- first **36** and second **38** diffusion bit lines located under said oxide regions

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pham et al. and Yang et al. (U.S. Patent No. 5,973,353).

Pham et al. show most aspects of the instant invention (Paragraph 5) except for the control gate having a metal silicide. Yang et al. teach (e.g. Figure 3) to put metal silicide **28** in a control gate to increase the conductivity of the control gate (Column 4 Lines 36 and 37). It would have been obvious to a person of ordinary skill in the art at the time of invention to put metal silicide as taught by Yang et al. in the control gate of Pham et al. to increase the conductivity of the control gate.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ogura et al. (U.S. Patent No. 6,366,500) and Kohda et al. (U.S. Patent No. 5,021,999) teach to use dual floating gate transistors.
9. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications. The official TC2800 Before-Final, **(703) 872-9318**, and After-Final,

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(703) 872-9319, Fax numbers will provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.

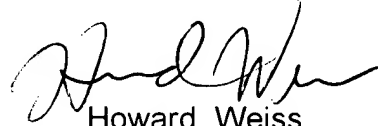
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at (703) 308-4840 and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at (703) 308-0956.

11. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ 316, 326	6/12/02
Other Documentation: PLUS Analysis Report	6/7/02
Electronic Database(s): EAST	6/12/02

HW/hw
12 June 2002


Howard Weiss
Examiner
Art Unit 2814